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ORDER I. BIMANA.



CAUCASIAN

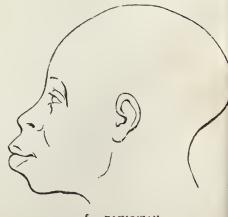


MONGOLIAN



AMERICAN.





EIHIOPIAN.

STEPPING STONE

TO

Hatural History

VERTEBRATE OR BACK-BONED ANIMALS

viz.

MAMMALIA, BIRDS, REPTILES, AND FISHES

BY JAMES OWEN

NEW EDITION

LONDON
LONGMAN, GREEN, LONGMAN, ROBERTS, & GREEN
1862

LONDON

FRINTED BY SPOTTISWOODS AND CO.

NEW-STREET SQUARE

PREFACE.

THE object of this little work is to lead the youthful mind, by easy and progressive stages, to a general and intelligent acquaintance with the system on which Natural History is based. This division of the work, viz., VERTEBRATE ANIMALS, consists of upwards of twelve hundred questions, with their answers, and is illustrated by sixty-six wood engravings of the principal types. The arrangement of Baron Cuvier has been mainly followed; and wherever scientific or technical terms first occur, the English meaning is given, and the terms themselves immediately follow in a parenthesis; so that the young learner, having many obstructions removed from his path at the outset, is encouraged to seek higher attainments in one of the most instructive and attractive studies which can engage his attention.

In the preparation of this little work, the compiler has to acknowledge the invaluable assistance he has derived from "Maunder's Treasury of Natural History," a book of unquestionable excellence and usefulness, which should be in the hands of every young Naturalist.

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THE STEPPING STONE TO NATURAL HISTORY.

PART I.

INTRODUCTION.

- Q. What is that Science called which imparts to us a knowledge of the Works of Nature?
- A. Natural History.
- Q. What is meant by the Works of Nature?
- A. All things created by God.
- Q. Into how many great divisions is it usual to distribute those Works of Nature which relate to the world in which we live?
- A. Three; viz., the Animal, Vegetable, and Mineral Kingdoms.
- Q. Which of these do we now propose to inquire into?
- A. The Animal Kingdom.

Q. By what name is this study commonly called?
A. Zoology, a term derived from two Greek words signifying a "Discourse on Animals."

Q. Of what does the Animal Kingdom consist?

A. Of all creatures having a mouth to receive their food, and a stomach to digest it?*

Q. How many different species of animals are

supposed to exist in our world?

A. They have been estimated at about 600,000, of which Vertebrated animals number 17,500 species, and Insects 550,000 species.

- Q. In what way are the different animals which compose the Animal Kingdom arranged by naturalists?
- A. They are placed in groups of such as bear the nearest likeness to each other in their formation, habits, and instincts.

Q. What are these groups termed?

- A. Sub-Kingdoms, Classes, Orders, Genera, and Species.
- Q. Of how many Sub-Kingdoms or principal groups does this arrangement consist?

A. Of four: viz.

^{*} It will be for the teacher to give examples of exceptions to the definitions in this work.



VIEW OF THE SKELETON OF ANIMALS.

S. 1

- 1. Back-boned animals. (Vertebrata.)
- 2. External jointed animals. (ARTICULATA.)
- 3. Soft-bodied animals. (Mollusca.)
- 4. Rayed animals. (RADIATA.)

Q. What is the meaning of Vertebrata?

- A. Animals having a back-bone (termed the Spinal column) consisting of a number of separate pieces of bone having a hole through the centre of each, in which is contained the Spinal marrow.
- Q. What are those separate pieces called?
- A. Vertebræ.
- Q. What bones are joined to the Vertebral column or back-bone?
- A. The breast bones or ribs which pass off on either side, the skull, the bones of the arms, and the bones of the pelvis, to which the leg bones are in most cases attached by means of a ball and socket joint.
- Q. Do the extremities or instruments of motion retain the same form in all Vertebrated animals?
- A. No; they vary according to their modes of life.
- Q. Mention some instances of this?
- A. The arms of man correspond to the fore-legs of quadrupeds, to the wings of birds, to the fore-feet of reptiles, and to the pectoral fins of fishes.

- 10 THE STEPPING STONE TO NATURAL HISTORY.
- Q. Do the limbs of all vertebrate animals occupy similar positions?
- A. Yes; invariably so. (Plate 2.)
- Q. Where are the arms of a man, the fore-legs of a quadruped, and the wings of a bird placed?
- A. They are always attached to the breast.
- Q. To what are the legs of a man, the legs of a bird, and the hind legs of a quadruped attached?
- A. To the pelvis.
- Q. In what part of Vertebrated animals are the organs of sight, hearing, taste, and smell situated?
- A. In the head.
- Q. What is the colour of the blood of Vertebrated animals?
- A. Red.
- Q. Are the bones of Vertebrated animals visible to the naked eye?
- A. No, they are hidden by a covering of flesh.
- Q. What is the meaning of Articulata, the name given to the second primary division of the Animal Kingdom?
- A. Animals whose bodies and legs consist of several joints or rings inclosed in a hardened skin or tegumentary skeleton; as, lobsters, crabs, beetles, spiders, earthworms, &c.

- Q. Have Vertebrated and Articulated animals an equal number of jaws?
- A. No; the former have one pair only, while the latter have several.
- Q. What kind of movement have they in each case?
- A. Those of the Vertebrata open vertically or upwards and downwards; while those of the Articulata open laterally or sideways.
- Q. Do Articulated animals possess the senses of sight, hearing, taste, touch, and smell?
- A. Yes, they are all more or less developed, but that of smell possibly least of all.
- Q. How many legs have the Articulata?
- A. Seldom less than six, and often many more.
- Q. What is the colour of their blood?
- A. White.
- Q. Are Articulated animals rapid in their movements?
- A. Many of them are remarkably so; as Bees, Flies, and Beetles.
- Q. Is not the Common Housefly an instance of
- A. Yes; it has been observed to fly at the rate of about twenty-four miles an hour.
- Q. What is to be understood by the term "Mollusca," the name given to the third Sub-Kingdom of the Animal world?
- A. Animals with soft slimy bodies, (some of

which form for themselves shells in which they live), but not having either internal vertebrated or external articulated skeletons.

- Q. Where are Molluscous animals generally found?
- A. They are most abundant in seas, rivers, lakes, and ponds, and some are found in woods, fields, and gardens.
- Q. By what names are they best known?
- A. Snails, slugs, oysters, cockles, mussels &c. 5
- Q. Being destitute of legs, in what way do they travel from place to place?
- A. By means of alternate contractions and elongations of their bodies.
- Q. On what do they principally subsist?
- A. On both animal and vegetable substances.
- Q. What is the fourth great division of the Animal Kingdom called?
- A. Radiata; the animals comprehended in this group being termed "Radiated Animals."
- Q. What is meant by "Radiated Animals"?
- A. Such as have their organs of sensation and motion disposed like rays round a common centre; as star-fishes, corals, &c.
- Q. Which division of Radiated Animals is usually regarded as the connecting link between the Animal and Vegetable world?
- A. The Zoophytes or Plant-Animals.

VERTEBRATED OR BACK-BONED ANIMALS.

Q. Into how many classes are Vertebrated ani-

mals generally divided?

A. Into four; although some naturalists form a fifth class, termed Amphibia, by separating the Frogs and Toads or Batrachians from the Reptiles.

Q. Name the four Classes.

A. Mammalia, Birds, Reptiles, and Fishes. 2

Class I. Suckling Animals (Mammalia).

Q. To what kind of animals is the term "Mammalia" applied?

A. To warm-red-blooded animals which bring forth their young alive, and rear them by suckling; they are said to be viviparous.

Q. Is this invariably the case?

A. Not exactly; for the Pouched Animals (Marsupialia) and some Reptiles are Ovo-viviparous.

Q. What is meant by Ovo-viviparous?

A. Animals whose young are produced from eggs which are hatched within the body, and the young excluded alive.

Q. How may Mammalia be arranged?

A. In two divisions; viz. Ungulated and Unguiculated animals.

- 14 THE STEPPING STONE TO NATURAL HISTORY.
- Q. What are we to understand by Ungulated animals?
- A. Such as are furnished with hoofs to their feet.
- Q. What are termed Unguiculated animals?
- A. Those having claws.
- Q. What kind of food is most natural to hoofed animals?
- A. Vegetable food. / 3 24.
- Q. What is the natural food of Clawed animals?
- A. Vegetable and animal substances.
- Q. As the Cetacea, or Whale tribe have neither hoofs nor claws, can they properly be included in either of the divisions above named?
- A. No, yet from their carnivorous habits they are usually classed with the Unguiculated or clawed animals.
- Q. In what way can we ascertain the sort of food best adapted to different animals?
- A. By the peculiar structure and arrangement of the teeth.
- Q. How many kinds of teeth are there?
- A. Three.
- Q. What are they called?
- A. Incisors, Canines, and Molars.
- Q. Which are called Incisors?
- A. The front or cutting teeth.

Q. Which are the Canines or Dog-teeth?

A. The sharp-pointed teeth placed generally on each side the Incisors.

- Q. For what are they peculiarly adapted?
- A. Tearing or holding.
- Q. Which are the Molars?
- A. Those situated farthest back in the jaw.
- Q. By what other name are they called?
- A. Grinders; their use being to grind the food.
- Q. How are the grinders of hoofed animals formed?
- A. They are flattened at the top, with little ridges produced by the wearing away of the softer portions.
- Q. Are the teeth of Clawed animals of the same description?
- A. No, they vary considerably; some being like the teeth of a saw, others having raised conical points, and a third having little rounded knobs or eminences.
- Q. Are Mammalia usually arranged by Naturalists in these two divisions of Ungulated and Unguiculated animals?

A. No; they are generally distributed into nine orders.

Q. What are they hamed?

A. 1. Two-handed Animals. (Bimana.)

2. Four-handed Animals. (Quadrumana.)

3. Clawed Animals. (Carnaria.)

4. Pouched Animals. (Marsupialia.)

5. Gnawing Animals. (Rodentia.)
6. Toothless Animals. (Edentata.)

7. Thick-Skinned
Animals. (Pachydermata.)

8. Ruminating Animals. (Ruminantia.)

9. Whales, Dolphins, &c. (Cetacea.)

ORDER 1. Two-handed Animals. (BIMANA).

Q. What is understood by the term Bimana?

A. Two-handed; and is applicable alone to man, who is pre-eminently the head of the animal creation.

Q. Why is this high and honourable position

assigned to man?

A. Because he is endowed with reason in contradistinction to mere instinct, and is susceptible of the highest mental culture. He is the only creature that walks naturally in an erect position.

Q. What animals approach nearest to the human

race?

A. The Monkey tribes.

Q. Is an upright position natural to these animals when walking?

A. No: they need additional support.

Q. In what way do they indicate the necessity of this?

A. By invariably grasping with their fore extremities anything within their reach.

- Q. Can men walk easily or rapidly on their hands and feet?
- A. Certainly not; it is a most unnatural position for the human body.
- Q. Are not the wisdom and goodness of the Creator wonderfully manifested in this peculiarity of our race?
- A. Undoubtedly they are; as the upper extremities or hands are left at perfect liberty to obey the dictates of the will.
- Q. Would not our very existence become burdensome if deprived of this invaluable blessing?

A. Yes; we should be reduced to the greatest straits, and probably be soon exterminated from the face of the earth.

Q. Is man superior in physical strength and agility to the rest of the animal creation?

A. No; to many he is confessedly inferior, as, for instance, the lion, tiger, elephant, horse, antelope, &c.

Q. Then by what means is he enabled to assert his supremacy?

A. By the nobler powers of his mind, or reasoning faculties, which enable him to think, plan, and act; and thus by his inventive genius compensate for his deficiencies in other respects.

- Q. How does man communicate his thoughts to his fellow man?
- A. By the utterance of articulate sounds; or what is called language.
- Q. Have not most animals the power of making themselves understood by their own species by peculiar cries?

A. Yes; but they cannot naturally utter articulate sounds.

- Q. What is considered the ordinary duration of human life?
- A. Seventy years; although in the earlier ages of the world it was prolonged far beyond that.
- Q. How many varieties are there of the human species?

A. Five.

Q. By what peculiarities are they chiefly distinguished from one another?

A. The form of the skull, the quality of the hair, the expression of the countenance, and the colour of the skin.

- Q. What are the names under which these five divisions of the human family are classified?
- A. 1. Caucasian;2. Mongolian;3. American;4. Malay;5. Ethiopic.
- Q. Which of these holds the highest rank among the peoples of the world?
- A. The Caucasian; distinguished for their high

intellectual endowments, enterprising habits, and physical beauty.

Q. What are their prevailing features?

A. Rounded oval skulls; fine, long, and sometimes curly hair; and the colour of the skin varying from white to brown of every tint.

Q. What countries do they inhabit?

A. Europe, Western Asia, Northern and Eastern Africa, and Hindostan.

Q. What are the distinguishing characteristics of the Mongolian race?

A. Square or oblong skull; flat face with high cheek-bones; straight, long, and thin black hair; and the skin of a dingy yellow colour.

Q. What countries do they occupy?

- A. Northern and Eastern Asia; comprising the Mongol-Tartars, Turks, Chinese, and most of the tribes of the Polar regions.
- Q. What are the principal features of the American race?
- A. The skull is long; the face large, with prominent nose and cheek-bones; the hair long and black, but thin; and a copper-coloured skin.
- Q. Where are they found?
- A. In North and South America.
- Q. Are they not gradually disappearing before the inroads of the Caucasian race?
- A. Yes; and they are now comparatively few in number.

- Q. What are the peculiarities of the Malay race?
- A. They have high square skulls, projecting upper jaw, wide noses, coarse black hair, and a tawny or dark brown skin.

Q. In what countries are they found?

A. Borneo, Java, Sumatra, the Philippine Islands, New Zealand, and many of the Polynesian Isles.

Q. What are the distinguishing features of the

Ethiopic race?

- A. They have long narrow skulls, flat noses, thick lips, black woolly hair, crooked legs, and the skin varying from a dark copper colour to jet black.
- Q. What countries do they inhabit?
- A. Southern and Western Africa and some of the larger islands of the Pacific.
- Q. Is not the superiority of reason over mere instinct abundantly manifest in the progressive advancement of the human race in arts, sciences, civilisation, and religion?

A. Yes; for the rest of the animal creation remains in the same condition as when first

created.

Q. Wherein consists the truest happiness as well as the highest duty of the human race?

A. The intelligent and reasonable worship of the Supreme Author of their existence, by obe-



ORDER II. QUADRUMANA.

SUB-ORDER 1. SIMIAD.E.



GIBBON. OR LONG-ARMED APR, (PITHEOUS LAR.)



ORANG OUTANG .- (SIMIA SATYROS.)



MANDRILL. - (GYNOGEPHALUS MAIMON.)

SUB-ORDER 2. CEBIDÆ.



HOWLING MONKEY .- (MYOETES URSINUS.)

SUE-ORDER 3. LEMURIDÆ.



FLYING LEMUR AND YOUNG (GALEOPITHEGUS VOLANS.)
WITH THE FRONT PART OF THE SKULL.

dience to his will, and the proper use and admiration of his glorious works.

ORDER 2. Four-handed Animals. (QUAD-RUMANA.)

- Q. What is meant by Quadrumana, the name given to the Second Order of Mammalia?
- A. Four-handed; and it is applied to animals, the extremities of whose limbs resemble the human hand.
- Q. For what are these animals remarkable?
- A. Their power of grasping or clinging; so that they can climb with ease and rapidity.
- Q. How is this Order further sub-divided?

A. Into three groups; viz.,

- 1. Monkeys of the Old World. (Simiadæ.)
- 2. Monkeys of America. (Cebidæ.)
- 3. Monkeys of Madagascar. (Lemuridæ.)
- Q. What are the distinguishing features of the Simiadæ?
- A. The closeness of the apertures of the nostrils, ten molar teeth in each jaw, and tails, when present, never prehensile.
- Q. Wherein do the Cebidæ differ from the Simiadæ?
- A. The apertures of the nostrils are wide apart; they have twelve molar teeth in each jaw, and generally long prehensile tails.

Q. By what are the Lemuridæ known?

A. By their long triangular shaped heads, sharp pointed muzzle, bushy tails, and opposable thumbs on each of their feet.

- Q. What are the Simiadæ or Monkeys of the Old World termed?
- A. Apes, Baboons, and Monkeys.

Q. What are Apes?

- A. Monkeys not having either tails or cheek-pouches.
- Q. What is meant by "Cheek-pouches"?
- A. Hollow places in the cheeks used as a temporary receptacle for food.
- Q. Do not Apes approach nearest in their structure to the human species?
- A. Yes; particularly the Chimpanzee and Ourang-Outang.

Q. Where are Apes most numerous?

A. In the great forests of India, Africa, and the larger islands of the Indian Ocean.

Q. How do they live?

A. Generally in troops in the trees, feeding on fruits, insects, leaves, &c.

Q. Have not Apes very long arms?

- A. Yes; when standing on their hind legs, they can nearly touch the ground with their arms.
- Q. Why is it that they cannot stand firmly and securely on their hind legs?
- A. Because they tread on the outer edges of

their feet, are not able to place the sole flatly on the earth as men do, and they have no heel.

- Q. What is the general disposition of these animals when adult?
- A. They are mostly fierce and untractable.
- Q. What are Baboons?
- A. Large dog-faced looking animals, having cheek-pouches and short tails.

Q. What is their general character?

A. They are wild, mischievous, and wantonly cruel; and are likewise most filthy and disgusting in their habits.

Q. Is it possible to tame them?

A. No; and their vicious propensities become more strongly developed the older they grow.

Q. Are they not notorious thieves?

- A. Yes; they assemble in large numbers, and go about plundering fields and gardens.
- Q. On what do they principally subsist?

A. Roots, berries, eggs, insects, &c.

Q. Which species are most remarkable?

A. The Derrias, Chacma or Pig-faced, and Mandril or Variegated Baboon.

Q. What countries do they inhabit?

A. Arabia, Abyssinia, Guinea, and the Cape of Good Hope.

Q. Wherein do Monkeys differ from Apes?

A. They have cheek-pouches, long tails, and callosities on the hinder parts.

Q. What is meant by "Callosities"?

A. Hard horny substances, formed in the skin affording protection to parts constantly in use.

Q. Are not Monkeys much smaller than either

Apes or Baboons?

- A. Yes; they are also exceedingly lively and amusing in their habits, and are much more docile and tractable.
- Q. Are they not very sociable animals?
- A. Yes; they flock together in large numbers.
- Q. Will the different species associate together?
- A. No; each species resists the intrusion of any other.

Q. Do they not manifest an extreme fondness for

their young?

A. Yes; they not only evince towards them the most unbounded affection, but are at great pains to instruct them in all that is necessary for their future well-being; and are even said to correct them when they are obstinate.

Q. On what do they chiefly live?

A. Nuts, fruits, buds of trees, juicy roots, and plants.

Q. Are not some species fond of shell-fish?

A. Yes; and oysters and crabs are especial favourites. Q. In what way do they manage to extract the oyster from the shell?

A. They watch until they see the shell open, when they adroitly insert a small stone, and then easily take out the oyster.

Q. Do they not display considerable cunning in

catching crabs?

- A. Yes; they are said to insert their tails in the holes the crabs frequent, which the crabs soon seize, when they are immediately carried to the shore and their shell quickly broken with stones.
- Q. Which are the most deadly enemies of the Monkey tribes?

A. Some of the larger species of Serpents, such

as the Boa-Constrictor.

- Q. In what countries are Monkeys most numerous?
- A. In Africa, where they literally swarm; and many are also found in India and the Malay Archipelago.
- Q. What distinguishes the Cebidæ, or Monkeys of America?
- A. They have no cheek-pouches, nor callosities on the hinder parts, the thumbs are either partly or altogether absent, they have prehensile tails, and their nostrils are separated by a wide space.

- Q. What are we to understand by "prehensile tails?"
- A. Tails which can be twisted round anything within reach, as the branches of trees, &c. so as to obtain complete or partial support.
- Q. Are not the Cebidæ much smaller in size than the Simiadæ?
- A. Yes; and they are far more easily tamed.
- Q. In what part of America are they most numerous?
- A. In the forests of South America, where they are to be met with in immense numbers.
- Q. Which are the most remarkable species of the Cebidæ or American Monkeys?
- A. The Howling, Spider, and Squirrel Monkey.

Q. What is the Howling Monkey?

A. A shaggy animal about the size of a fox, distinguished for its extraordinary vocal abilities; they meet in considerable numbers, and make the woods resound with their nocturnal concerts.

Q. How is this singular power obtained?

A. From a kind of hollow drum which communicates with the larynx or upper part of the windpipe.

Q. What is the Spider Monkey?

A. A slim little animal, without thumbs on the fore paws; of a black or fulvous-grey colour, with the exception of the face, which

is flesh-coloured; and having a long prehensile tail.

Q. How do they pass from tree to tree?

A. Attaching themselves one to another by means of their prehensile tails and fore limbs they form a kind of chain, and so hanging from the upper branch of a tree, swing until they acquire sufficient momentum to reach the next tree. In this manner they also cross narrow streams.

Q. What are the peculiarities of the third subdivision of Four-handed Mammalia or Mon-

keys of Madagascar?

A. The Lemurs have a fox-like head, full bright eyes, fine glossy fur, and a handsome bushy tail. There is also the "Flying Lemur."

Q. Do they possess the same mischievous propensities as the Simiadæ and Cebidæ?

A. No; they are very quiet and inoffensive in their habits.

Q. Are they not nocturnal animals?

A. Yes; they spend the day in sleep, rolled up like a ball, but at night sally forth in quest of fruits, on which they principally subsist.

ORDER 3. Clawed Animals. (CARNARIA.)

Q. Of what is the Carnaria or Third Order of Mammalia composed?

A. Unguiculated or clawed quadrupeds, furnish-

ed with three sets of teeth.

Q. What is the meaning of the word "Quadruped"?

A. An animal having four legs and feet.

Q. Into how many subdivisions is it usual to arrange the Carnaria?

A. Into three, viz.,

1. Hand-winged animals or Bats. (CHEIROPTERA.)

2. Insect-eaters. (Insectivora.)

3. Flesh-eaters. (CARNIVORA.)

Q. What are the characteristics of the Cheiroptera or Bats?

A. They have long fingers or toes on their fore-legs, connected with each other by a very thin skin, which also extends to the hind-legs, and by means of which they can fly in the air like a bird.

Q. How are the Insectivora distinguished?

A. By their elongated muzzle, short legs, conical tuberculous molar teeth, and the lower incisors usually long and pointed forwards.

Q. What are the prevailing characteristics of

the Carnivora?

A. They have six incisor teeth in each jaw; large, strong, and pointed canines on either side; and three sorts of molar teeth. All the Carnivora possess immense muscular strength, and have formidable claws.

Q. What are the Cheiroptera or Hand-winged animals called?

A. Bats.

ORDER III. CARNARIA.

SUB ORDER 1. CHEIROPTERA.



BAT - VESPERTILIO MURINUS.)

SUB ORDER 2. INSECTIVORA



SHREW,-(SOREX ARANEUS)

SUB ORDER 3, CARNIVORA

Fam 1 — Felidee



LION .- (FELIS LEO .







COMMON WEASEL .- MUSTELA VULGARIS.



POLAR BEAR

Fam. 5 -Phocidæ



SEAL - PHOCA VITULINA



- Q. Do Bats pass the winter in a torpid state?
- A. Yes; having selected the most secluded places, (such as old towers, roofs of churches, hollows of trees), they attach themselves one to another by their hinder legs in immense numbers according to their species, and thus remain suspended with their heads downwards until the spring.
- Q. Are Bats numerous in Britain?
- A. There are about twenty different species common to this country; of which the Long-eared, Barbastelle, and the Flittermouse are most remarkable.
- Q. Is not the Vampire Bat of South America distinguished for its blood-thirsty propensities?
- A. Yes; but nearly all other species are perfectly harmless.
- Q. How does the Vampire make its attack?
- A. It is said to fan its victim, when asleep, with its wings; and after biting out a small piece no larger than a pin's head, to surfeit itself with the blood.
- Q. Do any of the Bats eat fruit?
- A. Yes, the Fox-Bats of the Eastern Islands; most of the other species are omnivorous.
- Q. Of what do the Insectivora, or Second Subdivision of the Carnaria consist?
- A. Insect-eating quadrupeds; which are nocturnal in their habits, and burrow in the earth.

- Q. What are animals of this kind called?
- A. Moles, Shrews, Hedgehogs, &c.
- Q. What are Moles?
- A. Small quadrupeds about six inches long, whose bodies are covered with a soft velvet-like fur; they have long pointed muzzles, and very strong claws to the fore feet, with which they make most curious excavations in the ground.
- Q. What is there peculiar about the fur of the Mole?
- A. It has the singular property of lying smooth in every direction; so that the animal is never impeded in its movements underground.
- Q. On what do Moles feed?
- A. Insects, worms, snails, frogs, mice, &c.
- Q. What are Shrews?
- A. Little mouse-like animals not quite so large as the Mole; they have pointed muzzles, and their bodies are covered with soft silky fur.
- Q. Where are they mostly found?
- A. In gardens, hedgerows, and woods; they also burrow in the earth.
- Q. On what do they live?
- A. Worms, grubs, and insects.
- Q. Is there not an animal of this kind which burrows in the banks of streams?
- A. Yes; it is called the Water-Shrew; its fur is

of a brownish black colour, and its feet are formed for swimming.

Q. What is the Hedgehog?

- A. A curious little animal from eight to ten inches long, whose body is covered with sharp spines.
- Q. How does it resist its enemies?
- A. It rolls itself up like a ball, and the little spines effectually defend it from ordinary danger.
- Q. Is not the Hedgehog frequently kept in houses infested with beetles and cockroaches?
- A. Yes; these it quickly devours, as well as worms, slugs, and snails.

Q. Where is it generally found?

- A. In the hedges, ditches, and thickets of most of the temperate countries of Europe and Asia.
- Q. What are the habits of this animal?
- A. It sleeps during the day, and at night sallies forth in quest of prey; but passes the winter in a torpid state, rolled up like a ball in a nest of leaves and moss.
- Q. Is there not a little squirrel-like animal belonging to the insect-feeding quadrupeds, called the Banxring?
- A. Yes; it is a native of Sumatra and Java.

- Q. Of what is the Carnivora or Third Subdivision of the Order Carnaria composed?
- A. Of Beasts of Prey; or those quadrupeds which live principally on flesh.
- Q. Why are they called "Beasts of Prey"?
- A. Because their whole structure is adapted for the pursuit and destruction of living animals.
- Q. How many sorts of teeth have they?
- A. Three, viz., Incisors, Canines, and Molars.
- Q. Are all the molar teeth alike?
- A. No; there are three kinds, termed False, Carnivorous, and Tuberculated.
- Q. Which are the False molar teeth?
- A. Those which immediately follow the Canine, and are more or less pointed.
- Q. Which are the Carnivorous molars?
- A. Those next to the False molars; they are peculiarly fitted for cutting flesh.
- Q. Which are the Tuberculated molars?
- A. Those situated farthest back in the jaws; they are flattened at the top, and are adapted for the mastication of vegetable food.
- Q. How are the Carnivora usually arranged by Naturalists?
- A. Into three groups, according to their mode of locomotion.

Q. What are they named?

A. 1. Flat-soled walkers. (Plantigrade.)

2. Toe-walkers. (DIGITIGRADE.)

3. Fin-footed. (PINNAGRADE.)

Q. What are the Plantigrade Carnivora?

- A. Those quadrupeds which place the sole of their feet firmly and flatly on the ground in walking, as bears, racoons, badgers, gluttons, &c.
- Q. Which are termed "Digitigrade Carnivora?"

A. Those quadrupeds which walk on their toes, as lions, tigers, dogs, cats, &c.

Q. What are the Pinnagrade Carnivora?

- A. Those whose feet are formed for swimming, as seals, &c.
- Q. Do all the Carnivora live on flesh?
- A. No; most of the Plantigrades or Flat-soled walkers, live principally on vegetable food.
- Q. In what other way are the Carnivorous Mammalia further sub-divided by Naturalists?
- A. Into five tribes or families.
- Q. What are these called?

A. 1. The Cat tribe. (Felidæ.)
2. Dog tribe. (Canidæ.)
3. Weasel tribe. (Mustelidæ.)

GRADE.

4. Bear tribe. (Urside.) PLANTIGRADE.

5. Seal tribe. (Phocidæ.) PINNAGRADE.

- Q. What are the prominent characteristics of the Felidæ or Cat tribe?
- A. They have short rounded muzzles, powerful jaws, rough tongues, strong retractile claws, and a small additional tuberculous molar tooth in the upper jaw.
- Q. What are the prevailing features of the Canidæ or Dog tribe?
- A. They have strong lengthened jaws, pointed muzzle, smooth tongue, two flat tuberculous molar teeth behind the upper carnivorous tooth, and their claws are not retractile.
- Q. By what are the Mustelidæ or Weasel tribe distinguished?
- A. By their lengthened muzzles, six incisor teeth in each jaw, smooth tongues, long slender bodies, short legs, and their claws not at all, or only partially retractile.
- Q. What are the characteristics of the Ursidæ or Bear tribe?
- A. They are generally thick-bodied animals of considerable size, with short tails; their claws are not retractile, and they are carnivorous and frugivorous in their diet.
- Q. What are the peculiarities of the Phocidæ or Seal tribe?
- A. They have round heads, long conical bodies, short and webbed feet with sharp claws, no external ears, and are aquatic in their habits.

Q. What animals compose the Felidæ or first

family of the Carnivora?

A. Digitigrade animals of the Cat tribe; they have short powerful jaws, and retractile claws, and include lions, tigers, pumas, jaguars, panthers, leopards, and the wild and domestic cat, &c.

Q. What is meant by "retractile claws"?

A. Claws which are enclosed in a sort of sheath, and can be projected or drawn back at the will of the animal.

Q. Are not animals of the Cat tribe more destructive to life than all other Mammalia?

A. Yes; in their natural state they rarely feed on any flesh except that which they themselves have killed.

Q. Are they not also remarkable for their enor-

mous strength and activity?

A. Yes; they have strong muscular bodies, and their feet being provided with a soft springy cushion, they can steal upon their prey noiselessly and unsuspectedly.

Q. Have not animals of this sort a keen sense

of hearing, sight, and smell?

A. Their powers of vision and hearing are most extraordinary, but that of smell is not so fully developed.

Q. Is not the Lion justly regarded as the most

noble of all carnivorous animals?

A. Yes; and he is therefore styled the King of Beasts.

- Q. What is the size of a full-grown male Lion?
- A. About ten or twelve feet from the nose to the tip of the tail.
- Q. Is the female of equal size?
- A. No, she is generally smaller.
- Q. Does not the Lion possess a handsome flowing mane?
- A. Yes; and by this he may be readily distinguished from the Lioness, which has none.
- Q. Is not the Lion remarkable for his prodigious strength?
- A. Yes; he can carry off a buffalo or antelope with the utmost ease.
- Q. Does the Lion usually seek his prey in the day-time?
- A. No; he sleeps during the day, and at night-fall commences his prowl.
- Q. How does he seize his victim?
- A. He approaches with stealthy steps as near as possible, and then with a terrific roar springs upon it.
- Q. Has he not a very voracious appetite?
- A. Yes; he will devour enough at one meal to last him for several days.
- Q. Is not the tongue of the Lion possessed of singular power?
- A. Yes; it is furnished with prickly eminences which lie backwards, by means of which he

easily licks the flesh from the bones of his prey.

- Q. What countries does the Lion inhabit?
- A. Africa and Asia.
- Q. What is the prevailing colour of the Lion?
- A. It varies from a brown to a dingy yellow.
- Q. How long are they said to live?
- A. From twenty to forty years.
- Q. What animal of the Felidæ ranks next to the Lion?
- A. The Tiger, alike distinguished for its beauty and ferocity; it is generally smaller than the Lion.

Q. What is the colour of the Tiger?

A. The back is bright orange-yellow, striped with black; the face, throat, and belly are nearly white, and the tail is marked with black rings terminating in a black tip.

Q. Where are Tigers chiefly found?

A. In the jungles of India, where they are hunted by armed men on elephants.

Q. How does the Tiger seize his prey?

- A. Nearly in the same way as the Lion; he then sucks the blood, and afterwards carries the carcass to his lair, where he tears it in pieces at leisure.
- Q. What is the Puma?
- A. The largest animal of the Cat tribe found in

the American Continent, and is frequently called the American Lion.

Q. What is the colour of this animal?

A. When young it is of a brownish-red, which gradually changes to a fawn colour as it reaches maturity; the throat is white, and the tail, which is of a dingy red, is tipped with black.

Q. What is its size when full grown?

A. About five feet from nose to tail, the tail itself being nearly two feet and a half long.

Q. When does the Puma seek his prey?

- A. In the night-time; frequently climbing trees, and springing upon such animals as may pass beneath; it destroys life by drawing the head of its victim back with its paws until the vertebræ is broken.
- Q. What part of America does it frequent?

A. Chiefly South America.

Q. What is the Jaguar?

- A. An animal about the size of a wolf; the skin is of a pale brown-yellow colour, beautifully streaked and spotted with black; the breast and belly are white.
- Q. Is it not also a native of South America?
- A. Yes; and from the similarity of its habits and form to that of the Tiger, is not unfrequently described as the American Tiger.

Q. Will it attack man?

- A. Rarely, unless it is pinched by hunger, when it becomes very fierce and bold.
- Q. What is the Panther?
- Λ. A very restless and destructive beast, in size about six feet and a half from the nose to the tip of the tail; it is of a deep orangeyellow colour, with groups of black spots distinctly marked.
- Q. Wherein does it differ from the Leopard?
- A. The latter animal is smaller, the skin of a paler hue, the spots are not so deeply marked, and are closer together.
- Q. Do they not resemble each other as much in their habits as appearance?
- A. Yes; they lurk in woods and thickets, climb trees, crouch and creep along the ground, and suddenly dart upon their prey.
- Q. Where are these animals chiefly met with?
- A. In Africa; although many are natives of India, Persia, and China.
- Q. What animal have we in England so fierce, rapacious, and cruel, that it is termed the "British Tiger"?

A. The Wild Cat; it frequents the more thickly wooded and hilly districts of our island.

Q. On what does it subsist?

A. Hares, rabbits, small birds, &c., and it not

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unfrequently honours the poultry yard with a visit.

- Q. Are there not many varieties of the domestic Cat?
- A. Yes; the most general being the black, black-and-white, white, tortoiseshell, and tabby.
- Q. In what country is it said Cats were first domesticated or tamed?
- A. Egypt.

Q. Are they not extremely useful to man?

- A. Yes; they rid our dwellings of rats and mice, with which we should be otherwise completely overrun.
- Q. What are the Canidæ or Second Subdivision of the Carnivorous Mammalia?
- A. Digitigrade animals of the Dog tribe, comprising hyænas, dogs, wolves, jackals, foxes, &c.
- Q. Are they as destructive to living animals as the Felidæ?
- A. They are not; yet some are very savage in their disposition, and are possessed of considerable strength.

Q. What is the Hyæna?

A. A ferocious animal apparently forming the point of connexion between the cat and dog tribes.

Q. Is it not nocturnal in its habits?

A. Yes; it prowls in the night-time, in search of carrion, on which it chiefly feeds.

Q. Has it not a peculiar way of running?

- A. Yes; it goes along as if it were lamed for a considerable distance, and then appears suddenly to regain the use of the faulty limb.
- Q. In what parts of the globe are they most common?
- A. In Southern Asia and Africa.

Q. Is not the Dog regarded as a most valuable and faithful companion to man?

- A. Yes; he exhibits a willing and constant attachment to his master, unequalled by any other animal.
- Q. What people regard the Dog with abhorrence?
 A. The Mahommedans and Hindoos.
- Q. Is there not great similarity of structure between the Dog and Wolf?
- A. Yes; the resemblance is so striking, as to lead to the belief that they have a common origin.
- Q. Has it not been declared impossible to tame the Wolf?
- A. Yes; but it is not strictly true, as some rare instances are on record which show that by kind treatment, the ferocity of his disposition may be completely subdued.

Q. What is the favourite food of Dogs?

A. Flesh, yet when hungry, they will feed on cooked vegetables.

Q. Does the Dog ever perspire?

- A. No; but when very much heated, his tongue hangs from his mouth and drops moisture.
- Q. What singularity pertains to the nose of a Dog?
- A. It is destitute of hair, and is always cold and moist when the animal is in health.
- Q. Has the female many young ones at a litter?

A. The number varies from six to fourteen.

- Q. Are not the puppies in a very helpless condition when born?
- A. Yes; they are quite blind, and do not acquire their senses perfectly until a month old.

Q. Which are the principal varieties of the Dog?

A. The Newfoundland, Esquimaux, bloodhound, bulldog, foxhound, greyhound, mastiff, pointer, harrier, terrier, spaniel, shepherd's-dog, &c.

Q. Are not Wolves generally to be met with throughout Europe?

- A. Yes; and from the difficulty there is to elude their vigilance, or escape from their pursuit, they are regarded with terror by the lonely traveller.
- Q. What English King made laws with a view

to the extirpation of wolves from his king-dom?

A. Edgar.

Q. What is the Jackal?

A. A small animal, somewhat like a fox in size and appearance; they hunt in packs, and are often called "the lion's provider."

Q. Why are they so called?

- A. In consequence of their dismal howl, which starts the timid antelopes and deer and thus renders them an easy prey to the king of the forest.
- Q. In what countries do they abound?
- A. India, Persia, and South Africa.
- Q. What animal is renowned for his depredations in the poultry yard?

A. The Fox.

Q. Are there many kinds of Foxes?

- A. Yes; and they are all distinguished by the same cunning and suspicious disposition.
- Q. What are the Mustelidæ or third subdivision of Carnivora?
- A. Small long-bodied animals remarkable for their ferocious and destructive habits; they are considered the most sanguinary of all Carnivorous Mammalia.
- Q. Are they not called Vermiform or Wormshaped animals?
- A. Yes; because their bodies being so long and

thin, they are enabled to make their way through very small openings.

Q. What animals belong to this tribe?

A. The Weasel, Ermine, Ferret, Polecat, Sable, and Otter.

Q. Is not the Weasel of essential service in barns and granaries?

A. Yes; as it destroys vast multitudes of rats and mice.

Q. Which animal belonging to the Mustelidæ is much valued on account of its short, soft, silky fur?

A. The Ermine or Stoat; it is about ten inches long, and is excessively destructive to poultry.

- Q. Does it not change in colour during the winter?
- A. Yes; from a reddish-brown to a beautiful white, the tip of the tail always remaining black.
- Q. Is there not a great resemblance between the Ferret and the Polecat?
- A. Yes; both in appearance and habits, but the Ferret is the smaller of the two, and has a sharper muzzle.
- Q. Are not Ferrets used for rabbit and rat hunting?
- A. Yes; but when used for rabbit hunting it is

necessary to muzzle them, as they would otherwise kill the rabbits in their holes instead of driving them into the nets of the hunters.

Q. Which is their native country?

- A. Africa; from whence they were imported into Europe.
- Q. Do not the Ferret and Polecat emit a very offensive odour, especially when irritated?
- A. Yes; but the latter is the most disagreeable.
- Q. What is the Sable?
- A. An animal of the Weasel tribe, much valued for its beautiful brown fur.
- Q. Where is it found in immense numbers?
- A. In Siberia, and many persons are employed, during the winter months, in its capture.
- Q. What is the Otter?
- A. An aquatic animal of a greyish-brown colour from thirty to forty inches in length including the tail, it is very ferocious, and its bite is dangerous.
- Q. Is not the Otter web-footed?
- A. Yes; and it swims and dives with the greatest ease.
- Q. Where is the Otter tamed?
- A. In India, where it is used by fishermen to drive the fish into their nets.

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- Q. What does the Ursidæ or fourth family of the Carnivora comprise?
- A. Bears, Badgers, Racoons, Gluttons, &c.

Q. Are not Bears exceedingly formidable as well as possessed of enormous strength?

A. Yes; but they seldom attack man unless severely pressed by hunger or irritated; and they rarely quit the forest glades or mountain fastnesses.

Q. Are they not expert climbers?

A. Yes; they readily ascend trees and rocks in search of wild honey, for which they manifest an extreme partiality.

Q. Have they retractile claws?

A. No; they are therefore well adapted for climbing trees and digging for roots.

Q. What number of teeth have they?

A. Forty-two; viz. six incisors, two canines, and twelve molars in the upper jaw; and six incisors, two canines, and fourteen molars in the lower jaw.

Q. Are not Bears omnivorous?

A. Yes; they will devour all sorts of food, but generally prefer a vegetable diet.

Q. How do they pass the winter?

A. In a torpid state, during which they remain almost entirely without food, coiled up in some cave or hollow tree.

Q. Where is the Bear most vulnerable?

A. In the head; the other parts are so well covered with fat as effectually to shield them from danger.

Q. Was not Bear-baiting formerly a favourite

sport in Britain?

A. Yes; and it was not unfrequently honoured with the presence of royalty itself; but it is now entirely given up and is regarded as barbarous and brutalising in its tendency.

Q. Which are the principal species?

- A. The brown bear of Europe and Asia; the black and grisly bear of America; the jungle bear of India; the Malay bear; and the White or Polar bear.
- Q. Is not the Polar Bear a most powerful and savage beast?

A. Yes; it is justly considered the fiercest of the

bear tribe.

- Q. On what does it principally subsist?
- A. Seals, fish, and dead whales.

Q. What is the Badger?

A. A quiet inoffensive animal about thirty inches in length, covered with coarse rusty-grey hair.

Q. Does it not burrow in the earth?

A. Yes; and rarely quits its abode until night, when it seeks for frogs, insects, and fruits &c., on which it lives.

- Q. Are not the skin and bristles of the Badger of considerable value?
- A. Yes; the former is used for covering trunks, the latter is made into brushes; and in some parts of the world the flesh is eaten.
- Q. What countries does it inhabit?
- A. Most parts of Europe and Asia.
- Q. What is the Racoon?
- A. An American animal about thirty inches long, of a greyish-brown colour; it has the singular habit of dipping its food in water before eating, hence it is called "the washer."
- Q. Has it not very sanguinary propensities?
- A. Yes; it preys chiefly on small birds, but only devours the head, and sucks the blood from the wounds it inflicts.
- Q. Of what does the Phocidæ consist?
- A. Of animals of the Seal tribe.
- Q. Is not the Seal a marine animal?
- A. Yes, it seldom leaves the water except to suckle its young, or bask in the sunshine.
- Q. Wherein does the Seal chiefly differ from other quadrupeds?
- A. In the feet, which resemble fins and are provided with strong and sharp claws, they are thus particularly adapted for an aquatic life; and they have no external ears.

- Q. With what is the body of this animal covered?
- A. A short glossy fur which sets close to the skin.
- Q. Is it not extremely awkward in its movements on land?
- A. Yes; the shortness and position of the feet prevent any other than a slow and wriggling motion.
- Q. On what do Seals live?
- A. Sea-fowl, fish, and crabs.
- Q. Where are they most numerous?
- A. In the northern regions, where they congregate in immense numbers.
- Q. Are they not migratory in their habits?
- A. Yes; they are constantly moving from one place to another.
- Q. What makes Seal-catching a profitable business?
- A. They yield abundance of oil, and their skins are valuable.
- Q. Is not the Walrus a member of the Phocidæ?
- A. Yes; and it is chiefly remarkable for a pair of formidable tusks which project downwards from the upper jaw. It is the largest and most bulky of Arctic animals.

ORDER 4. Pouched Animals. (MARSUPIALIA.)

- Q. What kind of animals are comprehended in the Marsupialia or Fourth Order of Mammalia?
- A. Such as are provided with a bag or pouch, formed by the skin of the belly, in which their young are protected until they become fully developed; as at birth they are in a very imperfect and defenceless state.
- Q. What animals belong to this order?
- A. Opossums, Kangaroos, Wombats, &c.
- Q. Where are the animals comprised in this Order found?
- A. They are found exclusively in Australia, with the exception of the Opossum, which is a native of America.
- Q. Are they large animals?
- A. No; they vary in size in the different species; but the largest seldom exceeds that of a moderate sized dog.
- Q. What number of teeth have they?
- A. Fifty; which is greater than that of any other quadruped, except the Myrmecobius.
- Q. What is the Myrmecobius?
- A. A small Marsupial animal resembling a squirrel; found in Australia, which has fifty-two teeth.

ORDER IV. MARSUPIALIA.



KANGAROO

ORDER V. RODENTIA.



PALM SQUIRREL .- (SCIURUS PALMARUM.)

ORDER VI. EDENTATA.



GREAT ANT-EATER. -- (MYRMECOPHAGA JUBATA.)

ORDER VH. PACHYDERMATA.

SUB-ORDER 1. PROBOSCIDEA.



ASIATIC ELEPHANT. - (ELEPHAS INDICUS.)

SUB-ORDER 2. ORDINARIA.



INDIAN AHINOCEROS. (REINOCEROS UNICORNIS.



Q. On what does the Opossum feed?

A. On insects, reptiles, birds, eggs, fruits, &c.

Q. Where does it take up its abode?

A. In hollows and branches of trees, from whence it issues at night in search of food. It has a prehensile tail, and when surprised feigns death.

Q. What is the Kangaroo?

A. A pouched animal remarkable for the extraordinary length of its hind legs and tail; and the extreme shortness of its fore-feet.

Q. Is it a large animal?

- A. There are many species, some as small as a squirrel, while others are occasionally met with as large as a sheep.
- Q. On what do they subsist?

A. Chiefly on grass.

- Q. In what does the Kangaroo resemble the Rodents and Ruminants?
- A. It resembles the Rodents in the structure of its teeth, and the Ruminants in its food and habits.
- Q. Is the flesh of the Kangaroo eaten by men?
- A. Yes; and by many is esteemed quite a delicacy.
- Q. Is it not much impeded in its movements by the disproportion of its limbs?

A. No; it takes the most surprising leaps, in

which it is greatly assisted by its tail, and it is said that when alarmed it will soon out-distance the fleetest greyhound.

ORDER 5. Gnawing Animals. (RODENTIA.)*

- Q. What is the meaning of the term "Rodentia," the name given to the Fifth Order of Mammalia?
- A. Gnawing animals.

Q. Why is that name given?

- A. In consequence of the peculiar formation of the teeth, which are admirably adapted for gnawing hard or tough substances.
- Q. How are the incisor teeth of these animals formed?
- A. The two long front teeth in each jaw are chisel-shaped, and work against one another; they are enamelled only in the front, so that the back part being softer wears away quicker, and thus preserves the sharpness of their edges.

Q. Have not these teeth a rapid growth?

A. Yes; they grow as fast at the roots as they wear away at the top, and should one be lost or broken, the corresponding one in the other jaw will increase to an extraordinary size from having nothing to wear it down.

^{*} This order is often termed "Glires" from (Glis, a dormouse) a name given by Linnæus.

Q. How are the molar teeth formed?

A. They are in ridges of enamel and ivory, which wearing unequally preserve a rasp-like appearance.

- Q. What are the two chief characteristics of the Rodentia?
- A. The entire absence of eanine teeth, and the peculiar structure of the lower jaw, which is so articulated as to move backwards and forwards in a horizontal direction.
- Q. Are Rodent animals diminutive in size?
- A. Yes; and they are exceedingly prolific in all parts of the world.
- Q. Have they not usually a leaping instead of a running motion?
- A. Yes; this arises from the hinder legs being rather larger in proportion than the fore legs; these latter are also used to eonvey their food to the mouth.
- Q. What is the food of Rodent animals?
- A. Chiefly vegetable substances, but some of them will devour anything that comes in their way.
- Q. Into how many families or tribes is it customary to divide them?
- A. Into seven; viz.,

1. The Squirrel-tribe

(Sciuridæ.) (Muridæ.)

The Rat-tribe.
 The Beaver-tribe.

(Castoridæ.)

4. The Porcupine-tribe. (Hystricidæ.)

5. The Guinea-pig-tribe. (Cavida.)

6. The Chinchilla-tribe. (Chinchillidæ.)

7. The Hare-tribe. (Leporidæ.)

Q. What are the general characteristics of the Sciuridæ or Squirrel-tribe?

A. They have a small head, large eyes, four toes on the fore feet, and five on the hinder with sharp pointed nails, and a long bushy tail.

Q. By what are the Muridæ or Rat-tribe chiefly

distingushed?

- A. By their long, round, scaly tails, elongated pointed muzzle, and only three molar teeth in each jaw. For their size they are the fastest runners of all quadrupeds.
- Q. How are the Castoridæ or Beaver-tribe distinguished from the other Rodents?
- A. By a broad, flat, oval-shaped scaly tail, and large and very hard incisor teeth.

Q. What characterises the Hystricidæ or Por-

cupine-tribe?

A. A thick muzzle, two incisor and four flattopped molar teeth in each jaw, spiny scaled tongue, four toes on the fore feet, and five on the hinder, no collar bone, and the body covered with sharp spines.

Q. What are the prevailing features of the Ca-

vidæ or Guinea-pig-tribe?

A. They have pig-like bodies, covered with fine bristly hair, short feet, and no tail.

- Q. How are the Chinchillidæ or Chinchilla-tribe known?
- A. By their small rabbit-like bodies, five toes on the fore legs and four on the hinder, and tail curled backwards.

Q. What are the principal characteristics of the Leporidæ or Hare-tribe?

A. The two upper front incisor teeth are large and grooved, they have long hind legs, hairy-soled feet, toes the same as the Chinchillidæ, and a short turned-up tail.

Q. What are Squirrels?

- A. Playful and amusing little animals, of various colours, well known from their long bushy tails, which, in a sitting posture, are elevated over the back.
- Q. On what do they feed?
- A. Nuts, acorns, buds of trees, and fruits.
- Q. In their natural state do they not avoid the habitations of men?
- A. Yes; they prefer the retirement of the woods, where they construct their nest and sport among the branches of trees.
- Q. Are the Rat-tribe a numerous family?
- A. Yes; they are not only the most numerous, but the smallest of the Mammalia.
- Q. Of what do they consist?
- A. Of rats and mice; of which there are many species.

Q. What animal resembling the Kangaroo, apparently forms the point of connection between the Rat and Squirrel-tribes?

A. The Jerboa, which for its size possesses the longest hind legs of any known quadruped, and can leap five or six feet at a time.

Q. What is the Beaver?

A. A chesnut-coloured animal four feet in length to the tip of the tail.

Q. What is its chief peculiarity?

A. It has a flat tail, covered with scales which it uses as a trowel to build its house, and as an oar to steer itself when swimming; and its hind feet are webbed.

Q. Are there several species of Beavers?

A. Yes; but the American is most celebrated for the ingenuity and skill it displays in the construction of its habitation; and the dams which it forms to retain water in places where there is likely to be a scarcity.

Q. Is the flesh of the Beaver eaten by men?

A. Yes; by the Indians; and its fur is very valuable.

Q. What places do they inhabit?

A. The wooded districts along the banks of the rivers and streams of Europe and America.

Q. What is the Porcupine?

A. A pig-like looking animal, with a grunting

voice, whose body is covered with spines or quills.

Q. What is its size?

- A. From two to three feet in length, and it is one of the largest of the Rodents.
- Q. Do not the spines serve it as a defence against its adversaries?
- A. Yes; when irritated it rolls itself up like a ball, and by raising the spines offers a formidable and complete resistance.
- Q. What is its food?
- A. Fruits and vegetable substances.
- Q. Is it not a burrowing animal?
- A. Yes; and at night it leaves its retreat in search of food.
- Q. How does it spend the winter?
- A. In a torpid condition.
- Q. Is not one of this tribe called the Prehensile Porcupine?
- A. Yes; from having a prehensile tail; it is a native of South America, where it resides in the woods.
- Q. What is the Guinea-pig?
- A. A sociable little animal of tropical America, apparently forming the connecting link between the Rat and Hare-tribe.
- Q. Are not Guinea-pigs perfectly harmless?
- A. They are; and from their neat appearance

and cleanly habits are great favourites with children.

Q. Is there not a larger species of Guinea-pig

belonging to South America?

A. Yes; the Spotted Cavy is about two feet in length, and is much used as an article of food by the inhabitants of Brazil and Guiana.

- Q. On what does the common and Spotted Cavy feed?
- A. On all kinds of vegetables; but the Spotted Cavy is likewise partial to sugar and fruits.

Q. Is there not a remarkable semi-aquatic animal, of South America belonging to the Cavidæ

family?

- A. Yes; the Capybara or Water-hog which is nearly three feet in length, is tail-less, and has webbed feet. It is the largest of the Rodents.
- Q. What is the Chinchilla?
- A. A little burrowing rabbit-like animal, covered with a beautiful grey and white fur, much used for ladies' muffs and boas.
- Q. Of what country is it a native?
- A. Of South America.
- Q. Of what is the Leporidæ composed?
- A. Principally of Hares and Rabbits; of which there are several varieties.

Q. Are they not both exceedingly prolific?

A. Yes; the number of young produced by the rabbit is truly astonishing, a single pair having from thirty to fifty in a year.

Q. For what are hares chiefly remarkable?

- A. Their exquisite sense of sight and hearing, as well as their extraordinary powers of locomotion, rendering them peculiarly attractive to the sportsman.
- Q. Does the Rabbit differ much from the Hare?
- A. Not so much in form as in its habits; the former being a sociable animal and burrowing in the ground; while the latter is comparatively solitary in its habits, and its nest which is called a "form," is only a slight hollow flattened on the surface of the ground under some bush or other shelter.

Q. Are not both very valuable to man?

A. Yes; their flesh forms a most palatable and nourishing article of food; whilst their fur is turned to a variety of uses.

ORDER 6. Toothless Animals. (EDENTATA.)

- Q. What distinguishes the Edentata or Sixth Order of Mammalia?
- A. The total absence of incisor teeth, their large and hoof-like claws, and the prevailing slowness of their movements.

- Q. What are the principal animals included in this order?
- A. Ant-eaters, Armadillos, Sloths; and also the Megatherium and Mylodon now only found in a fossil state.
- Q. Are there not several species of Ant-eaters?
- A. Yes; the Tamandua, and Striped ant-eater of South America, the Little ant-eater; but the most curious is the Great ant-eater.
- Q. How large is this animal?
- A. About the size of a large bear, and it is not unfrequently called the Ant-bear.
- Q. What is the appearance of this animal?
- A. Its body is covered with dark-grey shaggy hair, having a streak of black on each side from the neck to the tail; it has a small head with long pointed snout, and a black bushy tail nearly as long as its body.
- Q. What country does it inhabit?
- A. Guiana and Brazil.
- Q. Why is it given the name of Ant-eater?
- A. Because it subsists entirely on ants, which swarm in those countries; it obtains them by raking open the ant-hills with its strong fore claws, and it then gathers up the insects with its long slimy tongue.
- Q. What is the Armadillo?
- A. A singular animal, readily known by its hard scaly armour, within which it can roll itself

up like a ball, and so secure itself from the attack of its pursuers.

- Q. Does it not burrow in the earth?
- A. Yes; and it effects this with great rapidity, but it may be easily captured by smoking it out of its hole.
- Q. What does it live upon?
- A. On juicy plants, roots, fruits, and insects.
- Q. Where is the Sloth to be met with?
- A. In the dense forests of South America, where it lives in the trees, feeding on leaves.
- Q. How does it suspend itself to the branches of trees?
- A. Under them and not on them; it drags itself forward by its fore legs, which are double the length of those behind.

ORDER 7. Thick-skinned Animals. (Pachydermata.)

- Q. What is the Seventh Order of Mammalia termed?
- A. Pachydermata; and it includes all animals having a solid or divided hoof which do not ruminate or chew the cud.
- Q. What is the meaning of the term Pachy-dermata?
- A. Thick-skinned; and this Order is so called because most of the animals comprised in it have thick skins.

- Q. How is it usual to subdivide the Pachyder-mata?
- A. Into three sections, viz.
 - 1. Prehensile-snouted. (Proboscidea.)
 - 2. Ordinary. (Ordinaria.)
 - 3. Single-hoofed. (SOLIDUNGULA.)
- Q. By what are the Proboscidea distinguished?
- A. A long prehensile snout, and five rounded toes on each foot, as in the Elephant.
- Q. By what are the Pachydermata Ordinaria chiefly known?
- A. They have two, three, or four toes on each foot, as the Tapir, &c.
- Q. What are the characteristics of the Pachydermata Solidungula?
- A. An undivided hoof, one apparent toe to each foot, and no horns, as the Horse, &c.
- Q. What animals are comprised in the Pachydermata Proboscidea?
- A. The Elephant, which is the only living type; and the Mammoth and Mastodon, which are both extinct.
- Q. Are there any existing land-animals larger than the Elephant?
- A. None; the next in size are the Hippopotamus and Rhinoceros.
- Q. What is the appearance of the Elephant?
- A. It has a gigantic body, supported on four solid pillars or legs, a large head with

large ears, very small eyes, an enormous pair of tusks projecting from the upper jaws, and an extraordinary proboscis or trunk.

Q. Are not Elephants exceedingly formidable?

A. In their wild state or when irritated they are so; but when tamed they are extremely docile and gentle, and exhibit the strongest attachment to their keeper.

Q. Are they not possessed of prodigious

strength?

A. Yes; they can sustain on their backs nearly two tons weight, and with ease break down with their trunks trees of considerable size.

Q. Is not the trunk of the Elephant a most ex-

traordinary instrument?

- A. Yes; for with it the animal can supply all its wants. With it, it can convey to its mouth the smallest particle of food, or tear down the branches of trees; with it, it sucks up water, which it afterwards discharges down its throat, or over its body; while as a means of defence it is very formidable especially when aided by its tusks.
- Q. Are there not several species of the Elephant now existing?

A. Only two; viz. the African and Asiatic.

- Q. In what respect do these differ from each other?
- A. The African Elephant has longer tusks, larger ears, and molar teeth with different crown.

Q. How are these animals captured?

- A. The Asiatic elephants are decoyed into enclosures by tame female elephants, and are then bound with ropes to the stoutest trees, until sufficiently subdued to be led away by their captors, when by kind treatment they are soon completely subjugated, and, from their extreme sagacity and intelligence, are turned to the most useful purposes.
- Q. On what do they chiefly subsist in their wild state?
- A. On grain, fruits, and especially the young and tender branches of trees, they also consume from thirty to forty gallons of water each day.
- Q. Are they not gregarious in their habits?
- A. Yes; they herd together in small groups or families, and prefer the shady forests to exposure in the open country.
- Q. How many families are comprised in the Pachydermata Ordinaria.
- A. Two; viz. 1. The Tapir-tribe. (Tapiridæ.)
 2. The Pig-tribe. (Suidæ.)

Q. How are the Tapiridæ or Tapir-tribe dis-

tinguished?

A. They have a projecting upper lip, three or four toes on the fore feet, and three on the hinder.

Q. What are the characteristics of the Suidæ or

Pig-tribe?

- A. They have four toes on each foot, two of which are shorter than the others, and scarcely touch the ground; they have three sets of teeth, and the canines which are curved and projecting are called tusks.
- Q. What animals are grouped under the term Tapiridæ?

A. The Rhinoceros, Tapir, and Hyrax; besides several extinct genera.

Q. How large is the Rhinoceros?

- A. When full grown it is about twelve feet in length, and seven feet in height.
- Q. With what is the body of this animal covered?
- A. A hard and impenetrable granulated skin, which hangs in loose folds about the neck, shoulders, and hind quarters, of the one-horned species.
- Q. Has not the Rhinoceros a singular looking head?
- A. Yes, it is rather long, with a strong, curved, and pointed horn just above the nostrils, sometimes growing to the length of three

feet; the eyes are small, and the upper lip projects considerably.

Q. What kind of legs has it?

- A. They are short, thick, and clumsy; and each foot is divided into three hoofs.
- Q. Are there not several species of this animal?
- A. Yes; but the two most worthy of attention are the one-horned Rhinoceros of India, and the two-horned Rhinoceros of Africa.
- Q. What is the disposition of the Rhinoceros?
- A. Although possessed of vast strength, it is a quiet and harmless animal; but when attacked it defends itself with the utmost fury.
- Q. On what does the Rhinoceros feed?
- A. Chiefly on herbage and the branches of trees.

Q. What is the Tapir?

- A. A dark brown coloured animal, very much like a hog, but distinguished by an elongated or prolonged snout.
- Q. Has it an equal number of toes on each of its feet?
- A. No; it has four on the fore feet, and only three on the hinder.

Q. What are the habits of the Tapir?

A. It wanders near the banks of rivers and lakes during the night, but in the day time secludes itself in the recesses of the forest,

where it feeds on wild fruits and the young shoots of trees; it is a quiet and inoffensive animal.

Q. Of what country is it a native?

A. One belongs to South America, the other to the Malay peninsula.

Q. What is the Hyrax?

A. An active little animal about the size and colour of a wild rabbit.

Q. Where is it found?

- A. One species is found in the rocky and mountainous parts of Syria and Arabia; it is supposed to be the Coney spoken of in Scripture. Another is a native of South Africa.
- Q. Name some of the animals belonging to the Suidæ or Pig-tribe?
- A. The Babyroussa, Peccary, Wild Boar, Wart-Hog, common Hog, and the Hippopotamus.

Q. For what is the Babyroussa distinguished?

A. Its long upper canine teeth or tusks, which project upwards and backwards like the horns of some oxen.

Q. How large is this animal?

- A. Nearly the size of the ordinary hog, but it is slighter in form; and the body is covered with dark brown bristly hair.
- Q. Where is it found?
- A. In the Indian Archipelago.

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Q. What is the Peccary?

- A. A fierce and gregarious animal of South America, in size and appearance like the common pig; it is an unrelenting destroyer of the Rattlesnake and other reptiles.
- Q. Is not the Wild Boar a very dangerous animal?
- A. Yes; it can inflict the most fearful wounds with its formidable tusks.
- Q. Was not Boar-hunting formerly a favourite sport in England.
- A. Yes; and it still is so in India and on the

continent.

- Q. What animals are said to derive their origin from the Wild Boar?
- A. All the varieties of the domestic hog, which forms so important an article of food in almost every country.
- Q. What people regard the eating of swine's flesh with abhorrence?
- A. The Jews and followers of Mahomet.

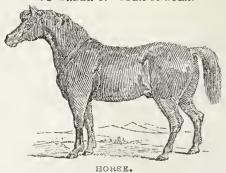
Q. What is the Hippopotamus?

A. An unwieldy looking animal, forming as it were the connecting link between the Hog and Elephant; the upper parts of the body are of a dark brown, and the belly flesh-coloured; its hide is about two inches in thickness.



ORDER VII. PACHYDERMATA. (continued.)

SUB-ORDER 3. SOLIDUNGULA.



ORDER VIII. RUMINANTIA.

Fam, 1.—Antelopidas



COMMON ANTELOPE.--(ANTILOPE CERVI-

Fam 3 - Bovidæ



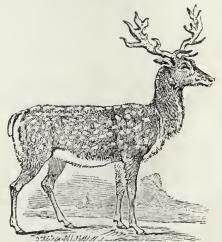
WILD BULL OF THIS COUNTRY.

Fam 2 —Capridæ



CASHMERE GOAT.

Fain 4.-Cervidæ



FALLOW DEER .- (CERVUS DAMA.)

- Q. For what is it remarkable?
- A. An immense head, with a mouth of extraordinary capacity, displaying teeth of enormous size and strength; the lower canines sometimes reaching two feet in length, and weighing nearly six pounds each in the full grown animal.
- Q. What country does the Hippopotamus inhabit?
- A. The rivers of Central and Southern Africa.
- Q. What does it live upon?
- A. Roots and vegetable substances, which it prefers in a partially decomposed state.
- Q. Is the Hippopotamus of a ferocious disposition?
- A. Not unless provoked, when it exhibits the most uncontrollable rage.
- Q. What animals are comprised in the Solidungula or third sub-order of Pachydermata.
- A. The horse, ass, mule, zebra, quagga &c.
- Q. Is not the Horse justly celebrated, as being one of the most useful as well as beautiful of quadrupeds?
- A. Yes; his tractability, strength, swiftness, courage, and generosity command universal admiration.
- Q. By what people is this animal said to have been first subjected to the use of man?
- A. By the Egyptians.

- Q. What country is renowned for producing the most pure and beautiful breed of horses?
- A. Arabia.
- Q. Does the Horse now exist in a wild state?
- A. Yes; they are to be met with in immense herds on the banks of the La Plata river in South America; and likewise in Southern Siberia, Mongolia, Moldavia, and South Africa.
- Q. Are any of the Solidungula, or horse family indigenous to America?
- A. Not any; the wild horses found in South America are the descendants of those introduced by the Spaniards.
- Q. Is not the Horse an herbivorous animal?
- A. Yes; in his natural condition his favourite food is grass and some herbaceous plants.
- Q. What are the canine teeth of Horses called?
- A. Tushes.
- Q. Has not the Horse naturally three different kinds of motion?
- A. Yes; viz., the walk, trot, and gallop.
- Q. How are these distinguished from one another?
- A. By the peculiar movement of the legs; thus, in the walk one of the fore legs is followed by the hind leg on the opposite side, and then repeated by the other fore and hind legs; in the trot the fore leg and the hind

leg on the opposite side are moved together, the movement being much more rapid than the walk; but in the gallop the fore and hind legs on the same side are moved simultaneously, and instantly followed by those on the opposite side.

- Q. Are there many varieties of this noble and useful animal?
- A. Yes; and according to their peculiar form and bulk they are applied to the purposes of the chase, turf, or road.
- Q. What country is unsurpassed by any other in the world for its breed of Horses?
- A. England.
- Q. For what is the Ass remarkable?
- A. His patience and powers of endurance, which render him most useful to man; but his disposition is rather obstinate.
- Q. What country produces the best breed of Asses?
- A. Spain, which is equally celebrated for its splendid breed of mules.
- Q. What renders the Mule so serviceable to the traveller in wild and mountainous countries?
- A. Its extraordinary sure-footedness, which is unrivalled by that of any other beast of burthen; and its astonishing capability of enduring fatigue.

Q. What is the Zebra?

A. A most beautiful quadruped of South Africa, rather larger than the common ass; it is well known from the black and brown bands with which it is striped.

Q. How many species are there of the Zebra?

A. Two; one frequenting the mountainous districts; the other ranging the plains.

Q. Have they not a very keen sense of hearing, sight, and smell?

A. Yes; and they are consequently difficult of capture.

Q. How do they repel the attack of their enemies?

A. By ranging themselves with their heads together in a circle, and then kicking their assailants.

Q. What constitutes the difference between the

Zebra and Quagga?

A. The quagga is a smaller animal, and the stripes, which are chiefly on the neck and shoulders, are of a brownish-black, and not so distinctly marked.

Q. Does it not closely resemble the Zebra in its general habits?

A. Yes; and although herding together in large numbers like that animal, it never associates with it.

ORDER 8. Ruminating Animals. (RUMINANTIA.)

- Q. What is the Eighth Order of Mammalia called?
- A. Ruminantia; or Ruminating animals.
- Q. What animals belong to this order?
- A. All such as are provided with four stomachs, chew the cud, and have cloven feet.
- Q. What names are given to the four stomachs?
- A. The first is called the "Rumen;" the second, the "Reticulum;" the third, the "Psalterium;" and the fourth, the "Abomasus."
- Q. What is the use of the "Rumen," or first stomach?
- A. It acts as a kind of store-room for the food which the animal has cropped.
- Q. What is the use of the "Reticulum," or second stomach?
- A. It serves as a tank to hold the water necessary to mix with the food.
- Q. What office does the "Psalterium," or third stomach fulfil?
- A. It operates as a sort of press to draw off the unnecessary liquid.
- Q. What takes place in the "Abomasus," or fourth stomach?
- A. There the final and complete process of digestion is performed.

Q. What is meant by "chewing the cud?"

A. The power possessed by certain animals of masticating their food a second time.

Q. How is this process accomplished?

- A. The herbage which the animal has cropped passes with scarcely any chewing into the first stomach, where it is moistened with water from the second stomach, formed into little balls and returned to the mouth, where it is masticated at leisure.
- Q. Into which stomach does the food pass after this second mastication?
- A. Into the "Psalterium," where it is deprived of its superabundant moisture, and from thence goes into the "Abomasus," or complete digesting stomach.
- Q. Does not this provision of nature afford another instance of the wisdom and goodness of the Creator?
- A. Yes; for animals of this kind are thus enabled to secure an adequate supply of food; which they would be prevented from doing, had they perfectly to masticate it at once.

Q. Have animals of this Order any incisor teeth in the upper jaw?

A. No; but they have six in the lower jaw, and two canines, and generally six molars in each jaw.

Q. Have not the Ruminants an exquisite sense of sight, hearing, and smell?

A. Yes; and the structure of the organs of those senses affords them the greatest facility in their use.

Q. Are not animals of this order of essential service to man?

A. Undoubtedly they are; as they furnish him with many necessaries, such as flesh, milk, butter, cheese, tallow, leather, wool, horns, &c. &c.

Q. Into how many families are the Ruminants usually arranged?

A. Seven; viz.

1. Antelope-tribe. (ANTILOPIDÆ.)

2. Goat-tribe. (CAPRIDÆ.)

3. Ox-tribe. (BOVIDÆ.)

4. Stag-tribe. (CERVIDÆ.)

5. Giraffes. (Camelopardidæ.)

6. Musk deer. (Moschidæ.)
7. Camel-tribe. (Camelidæ.)

Q. What are the general features of the Antilopidæ or Antelope-tribe?

A. They have round annulated and nearly solid horns, long pointed ears, no canine teeth, hind legs rather the longest, and are all remarkable for the extreme beauty and gracefulness of their forms, the swiftness and agility of their movements, the restlessness and timidity of their disposition.

Q. Are they not for the most part gregarious and migratory in their habits?

A. Yes; they herd together in large numbers, and roam over immense tracts of country in search of pasturage.

Q. What are the prevailing characteristics of the Capridæ or Goat-tribe?

- A. They have hollow annulated horns pointed upwards, eight incisor teeth in the lower jaw, and none in the upper; the male animal generally has a beard.
- Q. What distinguish the Bovidæ or Ox-tribe?
- A. Smooth and curved hollow horns, large heads, broad muzzles, strong muscular bodies, long tufted tails, and they are gregarious in their habits.
- Q. By what are the Cervidæ or Deer-tribe characterised?
- A. The possession of dense, bony, branching, and sometimes palmated horns, which are neither porous nor hollow, they are covered with a soft velvety skin, and the head is long and the muzzle pointed.
- Q. What are "Antlers"?
- A. The branches of the horns of Deer.
- Q. How often do the Deer-tribe shed their horns?
- A. In the spring of every year.
- Q. Is not the female usually destitute of horns?
- A. Yes; except in the Rein-deer and a few other species.



ORDER VIII. RUMINANTIA. (continued.)



NORTHERN GIRAFFE.



MUSK .-- (MOSCHUS MOSCHIFERUS.)

Fam 7 —Camelida



CAMEL. - (CAMELUS BACTRIANUS.)

ORDER IX. CETACEA.

Fam 1 —Delphinidæ



COMMON DOLPHIN .- (DELPHINUS DELPHIS.)

Fam. 2—Balæmdæ

COMMON OR WHALE-BONE WHALE.

CACHALOT OR SPERMACETI WHALE.

Q. What are the chief peculiarities of the Ca-

melopardidæ or Giraffes?

A. They have short, porous, permanent horns, which are covered with a skin having the appearance of matted hair, and are likewise tufted with soft bristles; the neck and fore legs are excessively long, the tongue prehensile, and the tail tufted.

Q. How are the Moschidæ or Musk deer dis-

tinguished?

- A. They have no horns, their bodies are lightly formed, and the male has a projecting canine tooth on each side of the upper jaw.
- Q. What are the chief features of the Camelidæ or Camel-tribe?
- A. They have a long curved neck, divided upper lip, three sorts of teeth, no horns, and the feet have two toes, joined together by a horny sole.
- Q. In what countries are the Antelope tribe found?
- A. The largest numbers exist in Africa, a few are natives of Asia and America, and the Chamois is the only remaining species belonging to Europe.
- Q. Which are the principal animals of this suborder?
- A. The common antelope, gazelle, chamois, eland, spring-bok, koodoo, and nylghau.

Q. For what is the common Antelope chiefly distinguished?

A. Its beautiful annulated and spiral horns, and the lightness and delicacy of its form; it is from four-and-twenty to thirty inches in height, and is of a brownish-red colour, the belly is white, which prevails throughout the whole Antelope family.

Q. What is the Gazelle?

A. A dark fawn-coloured animal of Arabia and Syria, about twenty inches high, justly celebrated for its graceful appearance and full expressive eyes; it is so fleet in its movements as to outstrip the swiftest grey-hound.

Q. What is the Chamois?

A. The only species of the antelope genus in Europe; well known as affording the most exciting chase to the keen and skilful sportsman; it is about the size of the common antelope, and is covered with long hair, which changes in colour with the seasons.

Q. What haunts do they frequent?

A. The most wild and inaccessible districts of the Alpine regions, where they may be seen bounding from cliff to cliff over the most frightful chasms with fearless indifference.

Q. What country does the Spring-bok inhabit?

A. The interior of Southern Africa, and it is

to be met with in herds of from twenty to thirty thousand passing from one district to another in search of pasturage.

- Q. Is not the Koodoo the largest of the antelope genus?
- A. Yes; this noble animal stands about four feet high, and is nearly eight feet long.
- Q. What part of Africa does it frequent?
- A. Caffraria; along the banks of wooded streams.
- Q. What is the Eland?
- A. One of the largest and most noble of the South African Antelopes.
- Q. What is the Nylghau?
- A. A large and powerful antelope of a bluishslate colour, with a scanty mane of black hair; the neck is finely curved, and on the breast is a tuft of long black hair.
- Q. Which is its native country?
- A. India.
- Q. Is not the Gnu antelope a singular looking animal?
- A. Yes; its bodily form bears a striking resemblance to that of the horse, with the exception of the head, which is surmounted with a pair of deeply curved horns; it has a long flowing mane, and the throat and breast are covered with long black hair; the skin is of a blackish-brown colour.

Q. Where are they found?

A. In the wild and hilly districts of South Africa.

Q. Of what do the Capridæ consist?

A. Of goats and sheep.

Q. What are the chief differences between Goats

and Sheep?

A. The latter have an arched forehead, lateral spiral horns, (when present) directed backwards and then pointed forwards, and no beard.

Q. Are not Goats very hardy animals?

- A. Yes; they live and thrive in nearly every climate.
- Q. Do they not delight to wander in rocky and mountainous districts?
- A. Yes; and the leaps they can take from one rock to another are truly surprising.
- Q. On what do they subsist?
- A. On almost every kind of herbage.
- Q. Is not the milk of the Goat very nutritious?
- A. Yes; it possesses many nourishing and medicinal qualities, and is much used by invalids.

Q. Are the skins of these animals valuable?

A. Yes; they are much used, under the name of Turkey morocco leather, for the most expensive bindings for books, as well as for writing-desks, travelling-cases, &c.

Q. Which species are most worthy of attention? A. The Cashmere, Angora, Syrian and Rocky

Mountain Goats.

Q. Are not the fleeces of these animals of great

importance in manufactures?

A. Yes; the most costly and magnificent shawls are produced from the wool of the Cashmere goat, while the finest camlets are made from that of the Angora.

Q. Is not the Ibex also a member of this family?
A. It is; and there are several species, of which the Jemlah Ibex of the Himalaya is considered the finest.

Q. For what is it chiefly remarkable?

- A. A curious pair of brown-coloured horns, curved backwards in the form of a half circle. As these animals frequent the most precipitous heights, their capture is not only difficult, but attended with considerable danger.
- Q. Are not Sheep of the highest importance to the human race?
- A. Yes; there are few animals from which are derived a larger supply of the necessaries of life, in the shape of food and clothing.
- Q. Has not the breeding and rearing of Sheep been the subject of constant care and attention in all ages?

A. Yes; and in Eastern climes it is usual to

estimate the wealth of an individual according to the extent of his flocks and herds.

Q. Are there not many varieties of this animal? A. Yes; they are exceedingly numerous, and

are to be found in most countries.

- Q. In what do they chiefly differ?
- A. In the bulk of their bodies, the length or shortness of their legs, the fineness or coarseness of their wool; some have horns, others are tail-less, &c.
- Q. Is the flesh of the Sheep held in equal estimation, as an article of food, in other countries as in Britain?
- A. No; the Cossacks and Calmucs regard it with indifference, and the Spaniards with positive dislike.
- Q. Is not Britain distinguished for the excellence of its breeds of Sheep?
- A. Yes; it is scarcely surpassed by that of any other country.
- Q. Which are the chief varieties in this island?
- A. The Leicestershire, Southdown, Cotswold, Dorset, Lincolnshire, Ryeland, and Cheviot breeds.
- Q. What breed is remarkable for the exquisite fineness of its wool?
- A. The Spanish Merino, which has been greatly improved by the Germans, and very suc-

cessfully introduced into the Australian colonies.

- Q. Are not Sheep regarded as the most gentle and timid of animals?
- A. Yes; and this is true as far as regards the domestic breeds; but in their wild state they display a boldness and activity which equals, if not excels, that of the goat.
- Q. Are not these animals subject to many diseases?
- A. Yes; but the most destructive are the rot, dysentery, foot-rot, and scab.
- Q. What singular species of Sheep is common to most of the countries of Western Asia?
- A. The broad-tailed sheep, distinguished by the immense mass of fat which covers the tail, varying from ten to twenty pounds in weight.
- Q. What species of Sheep is found wild in Europe?
- A. The Moufflon or Musmon, which inhabits the mountainous districts of Sardinia, Greece, &c.
- Q. What are the Bovidæ?
- A. Animals of the ox-tribe; they are possessed of great muscular power, and possibly are of more real service to mankind than any other animals.

- Q. Is not Britain renowned for the excellence of its breeds of oxen and cows?
- A. Yes; the rich pastures of this country are admirably adapted for rearing such animals, and during the last half century our farmers have been unremitting in their efforts to improve their stock.
- Q. Are there many varieties of these animals?
- A. Yes; the domestic breeds are so numerous as to leave but faint traces of the originals from which they are descended.
- Q. Which of the Bovidæ require more particular notice?
- A. The Bison, Buffalo, Yak, Zebu, and Musk Ox.
- Q. What is the Bison?
- A. A fierce and savage looking beast about the size of an ox, having an oblong fleshy hump between the shoulders, which, together with the entire fore part of the body, is covered with long shaggy hair, often reaching to the ground; the colour of the Bison is a dingy brown or black.
- Q. Where is it chiefly found?
- A. In the Western prairies of America, where vast herds are to be met with. There is a smaller species called "Aurochs," now restricted to Lithuania, which is supposed to be the Urus of the ancients.

Q. Is not the hunting of these animals a most

hazardous sport?

- A. Yes; for when wounded they turn on their pursuer with desperate fury, and unless he be exceedingly vigilant and skilful they speedily gore and trample him to death.
- Q. Is not the Bison much valued by the Indians? A. Yes; as from it they derive not only food and clothing, but also manufacture various articles from its skin and horns.
- Q. Is not the name of "Buffalo" frequently given to this animal?
- A. It is so by the Americans; but it differs materially from the real "buffalo," which is a native of India.
- Q. What kind of beast is the Buffalo?
- A. It is about the size of a full-grown ox, but somewhat shorter in the legs; and the horns frequently measure from eight to ten feet from tip to tip; the hide is usually of a black colour.

Q. Are they easily tamed?

- A. No; but nevertheless this is frequently accomplished by the natives, who use them for agricultural purposes.
- Q. Is there not a hideous looking species of Buffalo, belonging to Caffraria?
- A. Yes; it is not unlike the bison, the head and breast being covered with a quantity of

coarse black hair, and a black shaggy mane extends from the head to the middle of the back; from the head rises a pair of gigantic horns curved backwards and upwards; and the tail is tufted with long loose hair.

Q. What is the Yak?

- A. A black species of ox found in Thibet, whose white bushy tail is used in Turkey to indicate the rank of the higher military officers.
- Q. Is it not likewise called the Grunting Ox?
- A. Yes; in consequence of making a noise resembling the grunting of a pig.
- Q. What animal is regarded by the Hindoos with religious veneration?
- A. The Zebu or Brahmin bull.
- Q. Describe it?
- A. It is not much larger than an ordinary calf has a hump at the bottom of the neck, long pendulous ears, short horns, and varies in colour from a light grey to a milk white.
- Q. Is it not a quiet and inoffensive animal?
- A. Yes; it is used in India as a beast of burthen, and occasionally as an article of food.
- Q. What sort of animal is the Musk Ox?
- A. It is about the size of a full grown calf; the body is thickly covered with long hair, which is brown in the male and black in the female; the head is large and surmounted

with a pair of strong horns curving downwards to the mouth and then upwards; the legs are short, and the tail scarcely observable.

Q. What country does the Musk Ox inhabit?

- A. The rocky and hilly parts of Arctic America.

 They live in herds of thirty or forty.
- Q. What animals compose the Cervidæ?
- A. Those of the stag or deer tribes.
- Q. Where are they found?
- A. In all parts of the globe.
- Q. Are they not objects of universal admiration?
- A. Yes; the ease and rapidity of their movements, combined with the elegance and beauty of their appearance, render them general favourites.
- Q. Name some of the principal species of the Deer tribe.
- A. The Stag or Red Deer, Fallow Deer, Elk, Reindeer and Wapiti.
- Q. Was not stag-hunting formerly a favourite and royal sport in this country?
- A. Yes; and it is still followed both here and on the continent.
- Q. From what country is it supposed the Stag was first introduced into Great Britain?
- A. France; where many still exist. They are also numerous in the Highlands of Scotland.

Q. What is there deserving attention in the growth of the horns of this animal?

A. In the first year, there is only a kind of horny protuberance; in the second year, the horns are straight, and without branches; in the third year, two branches or antlers appear, and an additional one is added each year until the fifth, after which they only increase in size and thickness.

Q. Are not the horns of the Stag exceedingly rapid in their growth?

A. Yes; the immense horns of the full grown animal reach maturity in about ten to twelve weeks.

Q. On what does the Stag subsist?

A. Grass, the bark, buds and leaves of trees and shrubs.

Q. Does not the Stag abstain from water at

certain seasons of the year?

A. Yes; during the winter and spring they seldom drink; but in summer they seek out streams wherein to bathe themselves, as well as to quench their thirst.

Q. What is the Fallow Deer?

A. A beautiful animal much smaller than the Stag, the skin is of a reddish brown marked with white spots.

Q. What kind of horns has the Fallow Deer?

A. They are broad, palmated or webbed, and

branching; there are also two small antlers, which project over the forehead.

- Q. What is the flesh of these animals called?
- A. Venison; which is esteemed a great delicacy.
- Q. What is the Elk?
- A. The largest animal of the Deer tribe; it is of a greyish-brown colour, and has long legs, short thick neck, and large head, which appears disproportionate to the size of the body; and frequents the northern regions of Europe, Asia, and America.
- Q. Is not the Elk a very harmless animal?
- A. Yes; but he is also very courageous when suddenly attacked, and can vigorously defend himself with his large horns and fore feet.
- Q. Is not the Reindeer exceedingly serviceable to man?
- A. It is peculiarly so to the natives of Lapland and Norway, to whom "this animal is the substitute for the horse, the cow, and the sheep: harnessed to the sledge the reindeer bounds over the frozen lakes and rivers, or the equally hardened surface of the snow; of its milk they make their cheese; its flesh supplies them with food; and the skins furnish them not only with clothing, but with their tents and bedding." *

^{*} Maunder's Treasury of Natural History.

Q. What is the appearance of the Reindeer?

A. It has a thick square-built body, and stands about four feet and a half in height; the head is surmounted with long, slender, branching horns; from the under part of the neck hangs a quantity of hair, and the colour of the skin is brown, with white under the belly.

Q. On what do they usually feed?

A. Chiefly on lichen or moss, which abounds in the northern regions.

Q. What member of the Cervidæ is called the "Canadian Stag"?

- A. The Wapiti deer; it is much larger than the European stag, which in form and colour it greatly resembles; it has very large and branching horns.
- Q. Of what is the family Camelopardidæ composed?
- A. Of the Giraffe only; of which one species only is known to exist.
- Q. Where is it found?
- A. In Nubia and Abyssinia, and in Southern Africa.
- Q. Is not the Giraffe the tallest of animals?
- A. Yes; the full grown animal being often from fourteen to eighteen feet from the top of the head to the ground.

- Q. What is the colour of this beautiful animal?
- A. A light-fawn, with large spots of a much darker line.
- Q. Is there a larger number of vertebræ in the neck of the Giraffe than in other animals of the Mammalia?
- A. There is not, although the neck is of such extreme length.
- Q. Has not the Giraffe a prehensile tongue?
- A. Yes; and this with the aid of the projecting upper lip enables it to pluck with ease the leaves and young branches of trees on which it feeds.
- Q. What is its general disposition?
- A. Mild and timid; yet, when attacked it can defend itself successfully with its hoofs, against even the Lion.
- Q. What is comprised in the family Moschidæ?
- A. The Musk Deer, of which there are several varieties.
- Q. What countries do they inhabit?
- A. India and China, as well as the islands of Java, Sumatra, and Ceylon.
- Q. Are they not very slender in their form, and graceful in their movements?
- A. Yes; and their extraordinary activity renders their capture a matter of no small difficulty.

- Q. Is not the perfume we call "musk" procured from this animal?
- A. Yes.
- Q. What animals belong to the family Camelidæ?
- A. Camels and Llamas.
- Q. Is not the Camel exceedingly useful as a beast of burthen?
- A. Yes; its docility, strength, and powers of endurance are so great, as to render it invaluable to the traveller over the parched and arid deserts of the East.
- Q. What sort of animal is the Camel?
- A. The body is stout, and generally of a brown colour; it stands from five to six feet in height to the top of the hump on the back; the neck is long and crooked, and the joints of the legs are protected by hard horny substances; the feet are broad and elastic, and are furnished with two small hoofs.
- Q. How many kinds of Camels are there?
- A. Two; the Bactrian Camel and the Dromedary or Arabian Camel.
- Q. What is the difference between the two species?
- A. The Bactrian Camel has two humps on the back and the Arabian only one, and it is the smaller of the two.

Q. Where are they chiefly found?

- A. The Bactrian Camel is common to Central Asia, and the Dromedary to Northern Africa, Arabia, and Palestine, &c.
- Q. For how long can the Camel abstain from drinking?

A. For seven or eight days.

Q. By what means is it enabled to do this?

- A. By the possession of an extra cavity in the stomach, which serves as a reservoir for water.
- Q. Is not the fatty protuberance or hump also a source of nutriment to it?
- A. Yes; the fat is absorbed into the system when the animal has had to endure a long abstinence from food.
- Q. What weight can the Camel carry?
- A. From five to nine hundred-weight.

Q. At what rate does it usually travel?

- A. From thirty to ninety miles a day, according to the load it may have to carry.
- Q. On what does it feed?
- A. On the coarsest of vegetables; as thistles, nettles, &c.
- Q. Where is the Llama principally found?
- A. In the mountainous districts of Peru, where it exists in considerable numbers.

- Q. Is it not much smaller than the Camel?
- A. Yes; it is about six feet long, and four and a half feet high.
- Q. Was not the Llama used by the ancient Peruvians as a beast of burthen?
- A. Yes; but since the introduction of the horse, ass, and mule, its services are but little required.
- Q. Is it not greatly inferior to the Camel in swiftness and strength?
- A. Yes; the largest animals can travel scarcely more than from ten to fifteen miles a day with a load of about a hundred weight and a half.
- Q. With what is the body of the Llama covered?
- A. Long shaggy hair, which is used in the manufacture of fine woollen cloths.
- Q. How does the Llama defend itself?
- A. By kicking and spitting, and the saliva which it emits is said to produce eruptions of the skin.

ORDER 9. Whales, Dolphins, &c. (CETACEA.)

- Q. What is the Ninth Order of Mammalia termed?
- A. Cetacea; and comprises the whale tribe.
- Q. Do not animals of this Order live entirely in the water?
- A. Yes; and they are the largest of all Mammalia.

Q. What kind of animals are they?

A. They are warm-blooded, and breathe through lungs, for which purpose they have frequently to rise to the surface of the water, and they bring forth their young alive.

Q. What provision is made to prevent the temperature of their bodies from being reduced by constantly living in the water?

A. They are covered with a thick layer of fat, which effectually resists the cooling action of the water.

Q. Are the Cetacea carnivorous?

A. Yes; they feed on fish and small marine animals

Q. What is the chief external difference between these animals and fishes?

A. They are not covered with scales, and the tail fin is in a horizontal instead of a vertical position.

Q. Into how many families are the Cetacea divided?

A. Into two; viz.,

1. The Dolphin-tribe. (DELPHINIDÆ.)

2. The Whale-tribe. (BALÆNIDÆ.)

Q. What are the characteristics of the Delphinidæ, or Dolphin tribe?

A. They have a moderate sized head, and usually

conical teeth in both jaws.

- Q. What are the chief features of the Balænidæ, or Whale tribe?
- A. An immoderately sized head; two kinds have whalebone in the upper jaw; and a third, conical teeth in the lower jaw only.
- Q. What animals belong to the Delphinidæ?
- A. The dolphin, porpoise, grampus, narwhal, &c.

Q What is the Dolphin?

- A. An animal nearly ten feet in length; the upper part of the body is of a dark colour, the lower part white; it has a prolonged snout, is swift in its movements, and is exceedingly ravenous in the pursuit of prey.
- Q. Where are they mostly found?
- A. In the Mediterranean Sea and Indian Ocean.
- Q. What difference is there between the Porpoise and Dolphin?
- A. The Porpoise is smaller in size, and has a shorter snout.
- Q. On what does the Porpoise feed?
- A. On the mackarel and herring &c.
- Q. Where is it chiefly found?
- A. In the Atlantic and German Oceans.
- Q. Is not the Grampus very fierce in its nature?
- A. Yes; it is said to be the inveterate enemy of the whale, which it attacks in troops.

Q. How large is it?

- A. It varies from twenty to twenty-five feet in length.
- Q. What seas does it inhabit?
- A. The Northern Seas.
- Q. What animal is often designated the Sea unicorn?
- A. The Narwhal; from its having a long spiral horn projecting forward from its upper jaw.
- Q. What is the size of the Narwhal?
- A. It varies from twenty-five to thirty feet. in length.
- Q. Of what seas is it an inhabitant?
- A. The Arctic; where it lives upon the smaller kinds of fish.
- Q. What compose the Balænidæ or second family of Cetacea?
- A. The whales; of which there are three principal kinds.
- Q. Which are they?
- A. 1. The Greenland whale; 2. The Cachalot, or Spermaceti whale; 3. The Rorqual or Razor-backed whale.
- Q. Are not these animals remarkable for the extraordinary size of their head?
- A. Yes; it generally occupies from a third to a half of their length.

Q. Why is it wrong to call "Whales," fishes?

A. Because they possess all the prevailing characteristics of mammiferous animals.

Q. On what do the Whale tribe feed?

- A. On various small marine animals, such as the Clio Borealis, Sepia or Cuttle-fish, and other molluses and minute crustacea, myriads of which exist in many parts of the ocean.
- Q. What is the size of the Greenland Whale?
- A. From forty-eight to sixty feet in length, and from twenty to thirty in girth.
- Q. Has it not a smaller head than the Spermaceti Whale?
- A. Yes; it occupies about one-third its entire length; being from sixteen to twenty feet long, by ten to twelve feet broad.

Q. Has the Greenland Whale any teeth?

- A. No; it has instead a large number of vertical layers of whalebone attached to the upper jaw and terminating in a fringe.
- Q. What is the use of these layers and fringes of whalebone?
- A. They serve as a kind of sieve to retain the immense number of molluscous, radiated, and crustaceous animals which the whale engulphs in its enormous mouth and on which it subsists.
- Q. How is this process performed?
- A. The lower scoop-shaped jaw of this animal

when opened becomes instantly filled with water; the opening into the gullet is closed as the mouth shuts, when the water is thrown off through the blow-holes, and the animalcules are enclosed in the labyrinth of whalebone.

- Q. Is not the throat of this Whale extremely small?
- A. Yes; it is so small as scarcely to allow the passage of the smallest fish, being only about an inch and a half in diameter.
- Q. What makes our countrymen so willing to brave the dangers of the Arctic Seas in pursuit of this animal?
- A. The great value of the Baleen and Blubber which it yields in such large quantities.
- Q. What do you mean by Baleen and Blubber?
- A. The whalebone is termed "Baleen," and the fat "Blubber."
- Q. What quantity of oil may be obtained from a full-grown Greenland whale?
- A. About twenty to thirty tons.
- Q. In what respect does the Spermaceti Whale chiefly differ from the Greenland?
- A. In the form and size of the head, the greater length of the body, the possession of teeth in the lower jaw, and the absence of whalebone.

- Q. What is the length of the Spermaceti Whale? A. From seventy to eighty feet, of which the head constitutes above one third.
- Q. Where is this Whale chiefly found?

A. In the South Pacific Ocean.

Q. Why is it called the Spermaceti Whale?

- A. Because the principal portion of the head consists of a large cavity in which is secreted a fine oil, which on the death of the animal concretes or forms into a solid substance which we call spermaceti.
- Q. Is it not also remarkable for the acuteness of its senses of sight and hearing?
- A. Yes; and this renders its capture difficult.
- Q. Is the gullet of the Spermaceti Whale as small as that of the Greenland?
- A. No; it is just the reverse, and is said to be large enough to admit the body of a man.
- Q. What is the principal food of this animal?
- A. The Cuttle-fish, called by sailors the Sea-Squid.
- Q. Is not the Rorqual the largest of the Whale tribe?
- A. Yes; it is from eighty to one hundred feet long, and from thirty to forty feet in circumference. It has a loose skin or bag under the lower jaw.

Q. Is it not a very fierce animal?

A. Yes; and from this circumstance, together with the smaller quantity of oil which it yields, and the inferiority of its whalebone, it is less sought after than the other species.

Q. On what does the Rorqual feed?

A. On various kinds of fish, as well as molluscs and crustaceans. In one that was captured was found six hundred cod-fish, besides many others.

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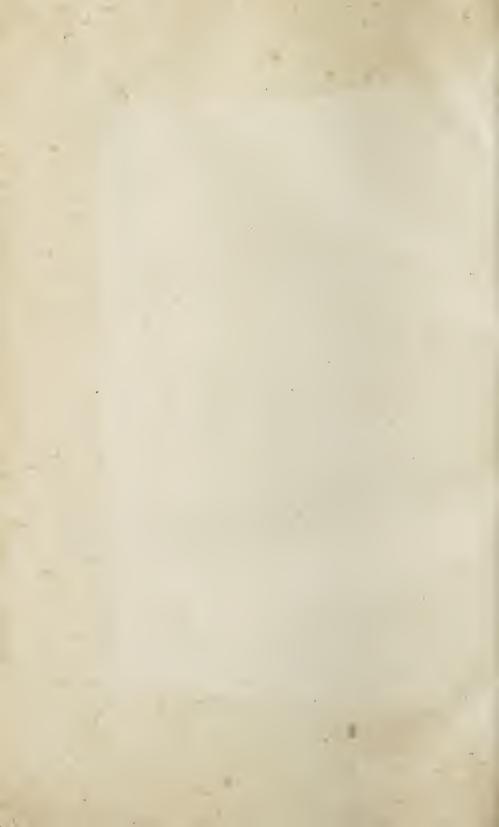
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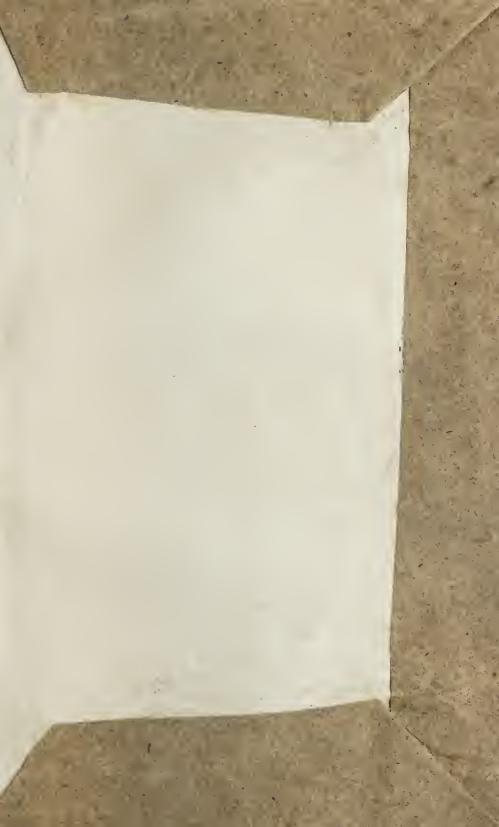
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